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Via Email and U.S. Mail
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Re: Anaconda Smelter NPL Site/Anaconda Regional Water, Waste & Soils Operable Unit Issues Regarding Naturally Occurring Arsenic in Groundwater

Dear Bill:

This letter responds to your letter of June 24, 2014 ("AR Letter"). At issue are the impacts of naturally occurring sources of arsenic on groundwater at the Anaconda Regional Water, Waste & Soils Operable Unit ("ARWW&S OU") of the Anaconda Smelter NPL Site ("Site"). The AR Letter summarizes a June 22, 2014 *Technical Memorandum and Response* by EnSci, Inc ("EnSci Memorandum"). It also provides legal arguments for limiting the liability of Atlantic Richfield ("AR") for response actions taken to abate arsenic contamination at the ARWW&S OU, based on the existence of naturally occurring arsenic sources in ground waters at the Site. AR representatives elaborated AR's technical positions during a July 29, 2014 meeting/conference call with EPA and MDEQ (the "Agencies").

The AR Letter sets forth AR's disagreement with EPA comments on recent AR technical reports. AR takes issue in particular with the work of EPA's consultant, CDM Smith ("CDM"). AR contends that CDM's *Agency Interpretive Report for MBMG's ARWW&S Arsenic Source Investigation Final Project Data Summary Report (October 30, 2013)* ("CDM Report") "is flawed in several fundamental respects." AR Letter at 1. The primary claim is that Montana Bureau of Mines and Geology ("MBMG") data "show arsenic levels measured above the Maximum Contaminant Level ("MCL") in the groundwater in the [ARWW&S OU] is generally naturally occurring and is not the result of mining-related activity." *Id.* AR concludes that its responsibility for response costs related to arsenic-contaminated groundwater at the Site is limited as a matter of law, and proposes apportionment of its liability "according to the ratio of mining-related arsenic (if any) to naturally-occurring arsenic." *Id.* at 6.

As explained at the July 29th meeting, the Agencies respectfully disagree. AR's statistical and technical analyses of the relevant ARWWS&S OU data are not convincing. They do not justify the rejection of a Conceptual Site Model ("CSM") developed by the Agencies on the basis of over two decades of interpretation of robust analytic studies – performed by AR, among other entities – regarding the fate and transport of mining and smelter-related arsenic at the Anaconda Site. AR relies on a statistical analysis for its contention that the influence of widespread geothermal waters contributes abundant naturally occurring arsenic to aquifers beneath the ARWW&S OU. This analysis derives major conclusions from small differences in temperature. The statistical analysis is flawed, however, because it ignores several factors that

affect temperature accuracy such as the release of heat into well samples by pumps and solar heating of water in seeps and springs. AR's technical analyses also fail to account for the decrease in arsenic concentrations at depth in certain monitoring well clusters in upland areas impacted by smelter emissions. That decrease is consistent with the Agencies' longstanding technical interpretation of Site arsenic data justifying the ARWWW&S remedial actions. In the Agencies' long-held view, arsenic deposited onto soils from smelter emissions has leached into the ground water aquifer in a widespread area, and is generally found at higher levels close to the surface and lower levels at depth. AR's analysis also does not address the presence of tritium in deep ground water at the Site. Since 1950s-era atmospheric nuclear testing is the acknowledged source of tritium in North American ground waters, it can only have infiltrated Anaconda ground waters by leaching through surface soils – likely along with arsenic and other contaminants.

The Agencies acknowledge that there exist naturally occurring arsenic sources in ground water beneath some smelter-impacted areas of the ARWW&S OU. These sources include the hot springs at Warm Springs and Fairmont, as well as the hydrothermally-altered bedrock at Crackerville and English Gulch. The Agencies also recognize there is uncertainty as to the extent of any contribution of these naturally occurring sources to arsenic contamination in Site ground water. However, the statistical and other flaws in AR's analysis do not eliminate this uncertainty. AR's effort to apportion its liability founders on its inability to present a reliable method of differentiating naturally occurring arsenic from mining and smelter-derived arsenic in a given ground water aquifer. AR thus provides no compelling basis for dismantling the Agencies' longstanding CSM conclusions concerning arsenic fate and transport at the Site. In the Agencies' view, the extent of any naturally occurring arsenic at the ARWW&S OU is significantly limited in comparison to smelter-impacted ground water plumes.

AR's legal arguments are likewise unpersuasive. Assuming AR is a liable party under CERCLA, that liability encompasses "all costs of removal or remedial action incurred by the United States Government or a State . . . not inconsistent with the national contingency plan." 42 U.S.C. § 9607(a)(4)(A). True, there is an exception to this general CERCLA rule. The statute directs EPA to not undertake actions "in response to a release . . . of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena." 42 U.S.C. § 9604(a)(3)(A). But no such response action has been undertaken here. The Agencies have taken multiple actions addressing ground water contamination from smelter and mining wastes released by AR's predecessors throughout the Anaconda Site. Relevant CERCLA judicial precedents make clear that response actions that target hazardous substances that have been altered by mining do not run afoul of Section 104(a)(3)(A) when they happen to remediate naturally occurring substances in the process.

Likewise, AR's attempt to limit its liability for the Agencies' CERCLA response actions that address ground water containing arsenic from mixed sources, *i.e.*, where there is commingling of arsenic from naturally occurring and mining and smelting sources, miscarries due to AR's inability to identify distinct harms arising from naturally occurring arsenic. AR's failure to propose a reliable, scientifically grounded method of distinguishing between arsenic from natural and non-natural sources when commingled in Site aquifers undermines its divisibility argument.

BACKGROUND

The Agencies' characterization of arsenic contamination in ARWW&S OU ground water has been consistent over two decades. It is based on a Conceptual Site Model ("CSM") for arsenic concentration in ground water that was developed collaboratively with AR in the 1990s. This collaboration included two sitewide Anaconda remedial investigations.[1] According to the CSM, the most prevalent source of contamination by arsenic and other metals in soils throughout the ARWW&S OU is aerial deposition of emissions from copper smelters located near the town of Anaconda occurring from 1884-1980, as well as impacts from various mining and smelting waste piles in the area. As set forth in the 1998 ARWW&S OU Record of Decision:

> The two primary sources of contamination within the ARWW&S OU are soils impacted by historic air emissions from the Old Works and Anaconda Smelter stacks, and tailings and other wastes remaining from the smelting processes. Historical smelting activities resulted in widespread, aerial deposition of fugitive dusts and contaminants released from stacks, resulting in contamination of soils in the ARWW&S OU. Materials released from the smelter stacks were small particulates not captured by emission controls in place. In general, contaminant concentrations in soil decrease with increasing distance from the smelter.

EPA Superfund Record of Decision: Anaconda Co. Smelter, 09/29/1998 ("ROD"), § 6.1. These contaminated soils in turn resulted in the contamination of shallow alluvial and bedrock ground water aquifers in various zones beneath the Site. "Ground water contamination in the bedrock aquifers," EPA further explained, ". . . is postulated to occur as a result of transport of arsenic via infiltration and deep percolation of precipitation through contaminated soil." ROD, Appendix D § 1.0 (emphasis added).

The CSM also formed the basis for the Agencies' Technical Impracticability ("TI") determination – *i.e.*, the conclusion that remediating large portions of the aquifers lying beneath the Site was unfeasible. The TI finding was based in large part on the CSM assumption that aerial smelter deposition was the most prevalent source of arsenic contamination in ground water. As EPA observed in justifying the TI finding, "the primary source of arsenic to ground water is infiltration of precipitation through widespread areas of contaminated soils." ROD § 9.5.4. Those soils were contaminated by smelter emissions and mining wastes. So great was the potential for recontamination of ground water by these widespread contaminated soils that the Agencies decided that large portions of Site ground water could not be successfully remediated. This TI finding relieved AR of enormous potential ground water cleanup obligations deriving from the mining and smelter operations of its corporate predecessors.

The ground water response actions selected by the Agencies were aimed in large part at minimizing the movement of arsenic and other contaminants from soils into Site ground water. *Id.* § 9.1.2. Additional remedy components included institutional controls ("ICs") to protect

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[1] *Anaconda Regional Water and Waste Operable Unit Final Remedial Investigation Report* (Atlantic Richfield 1996); *Anaconda Smelter NPL Site Anaconda Regional Soils Operable Unit Remedial Investigation Report* (Atlantic Richfield 1997).

future water use by prohibiting or regulating ground water consumption from domestic wells throughout the Site. The Agencies also mandated long-term ground water monitoring at various points of compliance to ensure containment of the plumes. *Id.* Further investigation of Site ground waters was required during the remedial design phase of the cleanup to better define and, if necessary, enlarge the TI zones. *Id.* § 9.5.4 (requiring drilling new wells and monitoring to "expand the characterization of the TI zones"). Finally, the ROD required AR to provide for alternative water supplies – whether through new wells, hook-up to community drinking water supplies, or provision of water treatment systems – for people residing at the Site whose domestic water supplies were found to contain arsenic contamination above health-based drinking water standards.

The additional ground water investigations required by the ROD resulted in the remedy modification outlined in a 2011 amendment to the ROD. The ROD Amendment reflected a revision of the MCL for arsenic to 10 mg/L from the 18 mg/L ROD level. This increased the extent of the existing Site bedrock and alluvial TI zones, and triggered a reevaluation of other Site waters to determine if they satisfied the revised water quality standards. *Record of Decision Amendment: ARWW&S OU, September 2011* ("ROD Amendment") at 21; *Proposed Plan for Modifications to the Remedy: ARWW&S OU* ("Proposed Plan") at 1. The ROD Amendment also added two new technical impracticability zones in the alluvial aquifers at the North and South Opportunity areas of the Site. The ROD had prescribed modest source control and monitored natural attenuation for the South Opportunity ground water plume, but these remedial measures were subsequently deemed impractical. The North Opportunity contaminant plume had not been detected until after the issuance of the ROD. Proposed Plan at 4. EPA affirmed the CSM in explaining that in both areas, "the suspected source of arsenic loading is interaction of the shallow ground water with a widespread area of soils contaminated with arsenic that was the result of fallout from nearly one hundred years of smelter emissions." *Id.*

The ROD Amendment also elaborated the requirement of implementing a domestic well monitoring program in geographic zones making up a domestic well area of concern ("DWAOC"). It mandated the periodic testing of existing and new wells in the TI zones and WMAs of the Site and, as necessary, well replacement or provision of alternative water supplies to protect people from drinking water exceeding the new arsenic standard. ROD Amendment at 4. Under the domestic well monitoring program, if a drinking water well is found to contain arsenic above the 10 mg/L MCL considered to be the maximum safe level for human consumption, AR is responsible for providing a replacement water supply. *Id.* at 66-67.

Since late 2013, however, AR has insisted on a major departure from the CSM that has guided the Agencies' decision making for the last two decades. AR now contends that arsenic found in ground water outside a radius of six miles from the Anaconda smelter stack and more than 35 feet below the ground surface is naturally occurring and should therefore be excluded from remediation. In effect, AR disclaims any responsibility for arsenic contained in domestic wells used by people residing more than six miles from the smelter or where the well draws water from depths greater than 35 feet.

This new position not only contradicts the long-running CSM but also conflicts with more recent EPA findings supporting the ROD Amendment. For instance, EPA determined from

AR's 2004 sampling that while geothermal sources may have contributed to part of the arsenic ground water contamination in the North Opportunity area, "the most significant source is due to mining/smelting impacts." ROD Amendment at 29. In addition, 2006-2007 sampling data showed that ground water arsenic contamination was "most prevalent in areas containing elevated arsenic concentrations in soil along with very shallow ground water." *Id.* The ROD Amendment is based on data illustrating the continued viability of the CSM conclusion that smelter emissions and mining wastes are the primary source of arsenic in ARWW&S OU ground water.

The Agencies have supplied numerous grounds for rejecting AR's new interpretative analysis in comments attached to a letter of February 17, 2014 from Charles Coleman to Roy Thun. EPA followed this letter with the CDM Report and a draft *Domestic Well Monitoring and Replacement/Treatment Plan* in April, 2014. The CDM Report, in particular, sets forth in detail the Agencies' reasoning why AR's new analyses fail to provide a persuasive basis for departing from the CSM and tabling ARWW&S ground water remedies.

DISCUSSION

A. Response to AR Summary Criticisms of the CDM Report

The Agencies solicited the CDM Report to provide technical support for the Agencies' review of AR's new interpretive analysis. The AR Letter focuses its criticisms on the CDM Report, declaring that it "suffers from several significant and foundational flaws." AR Letter at 3. But AR's criticisms are poorly supported by the EnSci Memorandum on which they rely. A subsequent CDM submission dated _____ **[Final Date]** ("CDM Memorandum") enclosed hereto responds point-by-point to the six technical criticisms of the CDM Report set forth by the AR Letter. The CDM Memorandum elaborates on the flaws in AR's interpretive analysis and supports the Agencies' refusal to abandon the CSM conclusion that smelter emissions and mining wastes are the most prevalent source of ground water arsenic contamination at the ARWW&S OU. Several points raised by CDM merit discussion below.

First, AR's contention that naturally occurring arsenic from geothermal waters is widespread in ARWW&S OU ground water is heavily reliant on a statistical analysis of data regarding temperatures of various ground water samples. If the temperature data are suspect, so are AR's conclusions. CDM explains that this temperature data fails to account for various potential sources of error, such as the introduction of heat into the samples by monitoring well pumps and the fluctuation of ground water temperatures caused by the impact of sunlight on springs and seeps. AR has never explained why these sources of potential error are not meaningful. In light of this data inadequacy, the Agencies' skepticism toward AR's conclusions, which are reliant on temperature differences as small as 0.5 degrees Celsius, is justified.

Second, while the Agencies acknowledge that there are known geothermal areas at the Site, these known areas are limited to narrow hot water vents along Cenozoic-era permeable fault zones in the Fairmont and Warm Springs regions of the Site. The AR statistical analysis groups ground water arsenic samples in a peculiar way that associates geothermal waters from these areas with ground waters some distance away. The result is an analysis that suggests that

geothermal waters are distributed far more widely across the Site than in the known Fairmont-Warm Springs Cenozoic corridor. This diminishes the reliability of AR's results.

The Agencies acknowledge that mineralized bedrock likely contributes arsenic to ground water in certain areas of the Site, such as the bedrock hydrothermal alteration zones at Crackerville and English Gulch. According to the addendum to the CDM Memorandum, English Gulch is the one area where two of the hydrothermal anions on which Atlantic Richfield places great weight, cesium and rubidium, appear to be correlated with arsenic in ground water. But CDM's analysis generally shows low correlations between the presence of these anions and arsenic in other areas of the ARWW&S OU. As CDM observes, the lack of a clear indicator constituent associated with either smelter-derived or naturally occurring arsenic significantly impedes any attempt to distinguish the two in Site ground waters. The Agencies thus remain unpersuaded by AR's argument from ostensible geothermal constituent data.

Third, CDM presents data that support the continued viability of the CSM conclusions regarding the contribution of smelter emissions to ground water contamination. This begins with the leachability of ARWW&S surface soils, which have, for example, been found to leach 450 µg/L arsenic at Powell Vista and over 200 µg/L arsenic at Fairmont. The fact that both areas received aerial deposition of smelter emissions, coupled with the presence of substantial ground water arsenic contamination in the shallow aquifers of these areas, supports the linkage of smelter emissions to ground water contamination. Data showing that in the bedrock areas most affected by smelter deposition, such as Smelter Hill and Stucky Ridge, arsenic concentrations are usually higher in shallow wells than in deeper wells also support the CSM conclusion.

Yet arsenic's presence in deeper wells in areas of substantial smelter fallout is significant, too. While some arsenic in these deep ground water zones likely arises from mineralized bedrock, there is no basis for ruling out smelter emissions as an additional source for arsenic concentrations at depth. This is especially in view of data showing the presence of tritium in wells at depths as great as 300 feet. Tritium can only have migrated from surface soils; AR has failed to explain how some portion of the arsenic in deep wells has not likewise migrated from surface soils. In short, AR's analysis furnishes scant grounds for revisiting the longstanding CSM conclusion that the presence of arsenic in deep ground water is likely attributable at least in part to mining and smelter sources. Moreover, it provides no reliable means of distinguishing commingled mining- and smelter-derived arsenic and naturally occurring arsenic.

Fourth, AR's interpretive analysis provides no basis for the Agencies to pull back from expanding the DWAOC to the southeast of Smelter Hill. To better define the ground water TI zones "to protect domestic well users," the ROD mandated further characterization of the lateral and vertical extent of the TI zones and adding new domestic well data to the Site database. ROD § 9.5.4. The DWAOC expansion eastward has reasonably ensured from this technical process. The Agencies welcome further shallow ground water investigations in this area to reduce data gaps. However, given the leachable soils and the predominant wind direction there, the smelter cannot be ruled out as a source of the arsenic found in domestic wells there.

As for AR's proposed six-mile limit radiating out from the smelter, beyond which it denies liability for groundwater response actions, CDM justifiably concludes that this demarcation is arbitrary and simplistic. It would exclude such highly contaminated areas as the

Dutchman High Arsenic Area, where smelter impacts to shallow ground water are clear. The Agencies must therefore respectfully disagree with AR's analysis. Based on the present state of knowledge concerning ground water contamination at the ARWW&S OU, AR's proposed limits on the extent of its responsibility for ground water contamination – founded as they are on a questionable statistical analysis – are not well supported and do not justify revision of the CSM.

B. Atlantic Richfield's Legal Analysis Fails to Support the Relief it Seeks

1. *EPA's remedial actions responding to ground water contamination at the Anaconda Site are not arbitrary and capricious because they do not target a "naturally occurring substance in its unaltered form"*

As the AR Letter observes, CERCLA Section 104(a)(3) prohibits EPA from undertaking a removal or remedial action in response to a release or threat of release "of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found." 42 U.S.C. § 9604(a)(3)(A). AR construes this statutory provision to mean that "EPA lacks the authority to recover response costs from Atlantic Richfield for removal or remedial actions related solely to naturally-occurring substances." AR Letter at 1 (emphasis in original). We concur. The statute prevents EPA from undertaking a response action that solely targets naturally occurring substances. EPA would not be able to recover the costs for such an action under CERCLA Section 107(a)(4)(A). However, the corollary of this CERCLA principle is that EPA *may* recover response costs for response actions addressing hazardous substances that have been altered by industrial processes, such as mining or smelting, even if the altered hazardous substances are mixed with naturally occurring substances. In such instances EPA is not responding to substances that are "solely" naturally occurring.

This corollary principle is illustrated by the legal authority cited in the AR Letter. AR contends that the court in *United States v. Iron Mountain Mines, Inc.* (*Iron Mountain I*), 812 F. Supp. 1528 (E.D. Cal. 1992) acknowledges the availability of a divisibility-of-harm argument under CERCLA Section 104(a)(3)(A) where there is evidence of distinct harms from naturally occurring substances. But the *Iron Mountain* proceedings illustrate two characteristics of this statutory provision: 1) it narrowly limits the availability of such arguments; and 2) "distinct harms" from naturally occurring substances are often hard to identify. The *Iron Mountain I* court explained that "the statute permits response to release of any natural substance released in altered form, or to release of a substance not altered by natural processes." *Iron Mountain I*, 812 F. Supp. at 1548. Since mining is "an artificial alteration" rather than a naturally occurring process or phenomenon, the court explained that if an EPA response action addresses releases that are artificially altered by mining, it is valid under the statute. *Id.*

This conclusion obtains even if the response action happens also to address contaminants that – like the acid mining drainage at issue in *Iron Mountain* – consist of naturally occurring substances. So long as the EPA response action addresses the substances artificially altered by mining, and has not targeted substances that have been altered solely through natural processes, the response action is valid. *Id.* ("[Defendant] points to no evidence to show that any release to which EPA has responded is naturally occurring"). EPA thus has authority to recover response costs under CERCLA Section 107(a)(4)(A).

The ground water remedies prescribed by the Anaconda ROD and ROD Amendment plainly address releases of arsenic into ground water that have resulted from "an artificial alteration," *i.e.*, they have been released from mining wastes and smelter emissions. The Agencies found massive amounts of arsenic and other metals contamination of soils traced to smelter emissions at the Anaconda Site, and further contamination traced to runoff from mine tailings waste piles. They also identified extensive surface and ground water contamination over wide geographic areas ultimately delineated as TI zones. The Agencies responded with remedies aimed at limiting the movement of contaminants from soils to ground water, further characterizing the extent of the ground water contamination. They required ICs to prevent the people from drinking highly contaminated ground water. The ROD called for ground water monitoring to evaluate the effectiveness of ICs and to determine if the ground water contaminant plume was expanding. As a result of the additional data generated, the Agencies have expanded the DWAOC boundary to ensure that residents potentially affected by releases of arsenic by AR's predecessors have access to safe drinking water. All of these actions have been taken in response to the presence of arsenic in ground water resulting, according to the CSM and the evidence on which it relies, from mining and smelting operations. If the actions have also addressed arsenic from naturally occurring sources, that has been an incidental consequence of the response.

As these Anaconda response actions have targeted arsenic contamination in ground water from mining and smelting operations, they are similar to the response actions at the Iron Mountain Mine site. There EPA moved to remediate elevated levels of hazardous substances in acid mine drainage, which happened also to contain naturally occurring substances. In a subsequent *Iron Mountain* opinion, after the defendant Rhone-Poulenc had attempted to revisit its liability for the response action, the court held that since the RODs had "specifically targeted contamination from the mine workings and mining waste piles," the law of the case doctrine precluded the defendant from re-litigating the issue of whether the RODs violated CERCLA Section 104(a)(3)(A). *United States v. Iron Mountain Mines, Inc.* (*Iron Mountain II*), 987 F. Supp. 1244, 1247 (E.D. Cal. 1997).

Significantly, Rhone-Poulenc had developed new evidence of the proportion of metals in site streams which were attributable to natural sources. Armed with expert testimony quantifying the background metals existing in two creeks near the mine prior to mining, and estimating the naturally occurring loads of various metals into those creeks, Rhone-Poulenc argued that its CERCLA liability should be reduced in proportion to those estimated loads. *Id.* Yet the court held that these estimated loads, "even if accurate," did not provide a basis to modify its earlier *Iron Mountain I* decision because they did not show that the remedies EPA had selected were "in response to" releases of a naturally occurring substances. "[E]ach of the three RODs," the court observed, "is narrowly focused on a particular source of contamination clearly generated by mining activity at Iron Mountain Mine. As such, those remedies are 'in response to' releases affected by mining." *Id.*

Iron Mountain II makes clear that the fact that a response action incidentally addresses naturally occurring substances does not place it in conflict with CERCLA Section 104(a)(3). As the court explained:

> It may be the case that the remedies selected in RODs 1,2, and 3 will have some effect on naturally occurring metals, whether such metals make up a minute but measurable portion of the flows or a more substantial percentage. Even so, *§ 9604(a)(3)(A) is not implicated merely because a response to mining activity will also have the side benefit of catching naturally occurring substances*. Only if the 'removal or remedial action' is 'in response' to a release of naturally occurring substances will the statute bar EPA's removal or remedial order.

Iron Mountain II, 987 F. Supp. at 1247-48 (emphasis added). Put a different way, so long as EPA "targets" its response action at an area directly affected by mining and smelting, the response action it is not arbitrary and capricious even if it happens also to remediate even a "substantial percentage" of naturally occurring substances. The court concluded:

> It is undisputed that at least a portion of the contamination at Iron Mountain Mine was caused by mining. And RODs 1, 2, and 3 target the areas directly affected by the mining. Thus, at least as to the remedies selected in RODs 1, 2, and 3, the United States has satisfied any burden it might have of showing that its responses were not directed to naturally occurring substances.

Id. at 1248.

Such is also the case at Anaconda. AR proposes, similar to Rhone-Poulenc in *Iron Mountain II*, to reduce its liability proportionate to "the ratio of mining-related arsenic (if any) to naturally-occurring arsenic." Yet EPA's remedial actions for ground water at the ARWW&S OU are directed at ground water that has been contaminated by mining wastes and smelter emissions. According to the Site CSM, such wastes and emissions have left arsenic residues that have infiltrated soils leading down to the ground water aquifers. All aspects of EPA's ground water remedy – *e.g.*, addressing contaminated soils to remove the source of ground water contamination; further investigations to determine the necessity of expanding TI zones; replacing contaminated domestic wells located within the DWAOC – have been aimed at addressing this ground water contamination from smelter and mining wastes. The presence of some naturally occurring arsenic in this groundwater is not determinative.

Further legal authority for EPA's position is provided by *United States v. W.R. Grace & Co.-Conn.*, 280 F.Supp.2d 1149 (D. Mont. 2003). The defendant in that case claimed, similar to Atlantic Richfield here, that EPA had violated the NCP and Section 104(a)(3)(A) by responding to a naturally occurring substance, asbestos, during a removal action that excavated contaminated soils to a depth of almost 20 feet. The court rejected the argument on the ground that the trial record established that EPA had responded to asbestos that was a product of vermiculite processing, and hence was not naturally occurring. *W.R. Grace*, 280 F.Supp.2d at 1174-75. *W.R. Grace* confirms that the decisive factor is what the response action targets. If it aims at remediating hazardous substances altered by mining process – like the mining wastes and smelter emissions at Anaconda – the action is valid even if it ends up addressing some naturally occurring substances as well. As Judge Molloy concluded:

> [T]he evidence presented at trial demonstrates that EPA's response actions in Libby were undertaken in response to releases and threats of releases associated with mined and

> processed vermiculite, not to a 'naturally occurring substance in its unaltered form.' Consequently, EPA's response action does not conflict with the limitation on responses set forth at 42 U.S.C. § 9604(a)(3)(A).

W.R. Grace, 280 F.Supp.2d at 1175.

W.R. Grace would furnish binding precedent on any EPA-AR dispute over the applicability of CERCLA Section 104(a)(3)(A) to deny EPA's recovery for response costs related to its ARWW&S OU ground water remedy. It would prevent AR from carving out its liability for arsenic concentrations in ground water located more than six miles away from the smelter stack and more than 35 feet below the ground surface of the Site. As noted by CDM, AR's recent technical analyses have failed to demonstrate that these areas constitute distinct zones where arsenic concentrations are attributable *solely* to naturally occurring sources. EPA's ARWW&S OU ground water response actions, even the ones extending further than six miles from the smelter stack and more than 35 below the ground surface, have been undertaken in response to releases of smelter and mining-related contamination. Therefore they do not run afoul of CERCLA Section 104(a)(3)(A).

2. *Atlantic Richfield cannot meet its burden of demonstrating that there exists a reasonable basis for apportioning its liability for mining- and smelting-related contamination of ground water at the Site*

Apart from its argument based on CERCLA Section 104(a)(3)(A), AR contends that traditional tort law principles restated in *Burlington Northern & Santa Fe Ry. v. United States*, 556 U.S. 599 (2009) support limiting EPA's recovery response costs related to naturally occurring arsenic at the Site. The AR Letter proposes that for ground water zones "where the arsenic concentrations are 'mixed' (*i.e.*, some naturally occurring, some attributable to mining-related activity), Atlantic Richfield should only be responsible for its proportional share of mining-related arsenic above the MCL." AR Letter at 6. The trouble is, AR has failed to set forth any valid technical method for calculating its "proportional share."

In *Burlington Northern*, the Supreme Court held that common law rules of apportionment for divisible harms apply to liable CERCLA parties that contribute to a common injury. *Burlington Northern* did not alter the law governing CERCLA divisibility. *United States v. Iron Mountain Mines, Inc.*, 2010 WL 1854118 at *3 (E.D. Cal. 2010) (holding that *Burlington Northern* did not represent an intervening change in law in denying motion for reconsideration). In upholding the district court's apportionment of liability based on the facts before it, the Supreme Court reaffirmed the legal standard for joint and several liability under CERCLA that nearly every circuit court had previously applied. The Court recognized that apportionment is possible when "there is a reasonable basis for determining the contribution of each cause to a single harm." *Burlington Northern*, 556 U.S. at 614 (quoting Restatement (Second) of Torts § 433A(1)(b). In reaffirming that a party remains jointly and severally liable under CERCLA Section 107(a)(4)(A) if it is not possible to identify a distinct harm that it has caused, and that in any event the burden of proof rests with the party seeking apportionment, the Court explained:

> Not all harms are capable of apportionment, however, and CERCLA defendants seeking to avoid joint and several liability bear the burden of proving that a reasonable basis for

> apportionment exists. [Citations omitted] When two or more causes produce a single, indivisible harm, "courts have refused to make an arbitrary apportionment for its own sake, and each of the causes is charged with responsibility for the entire harm."

Burlington Northern, 556 U.S. at 614-15 (quoting Restatement (Second) of Torts § 433A, Comment *i*).

AR recognizes that a prerequisite for its divisibility of harm defense is the presence of "distinct harms" from naturally occurring substances. AR Letter at 5. Yet AR fails to meet its burden of showing such harms. Although AR proposes apportionment based on "the ratio of mining-related arsenic (if any) to naturally-occurring arsenic" in ARWW&S ground water, its technical analyses lack a convincing basis for identifying such ratios. As discussed above, the statistical analysis is marred by flaws in the sample temperature data. These flaws in turn undercut AR's attempt to "identif[y] distinct areas within the ARWW&S OU where the arsenic concentrations are attributable solely to naturally occurring substances." *Id.* at 6.

There is no basis for AR's contention that arsenic in groundwater cannot be attributed to smelting activities further than 6 miles from the smelter, or deeper than 35 feet below the surface. This would leave out, for example, shallow ground waters underneath the Dutchman High Arsenic Area. Most of this region in the northeast section of the Site lies further than 6 miles from the smelter; yet it has clearly suffered the effects of smelter deposition. Likewise although AR and the Agencies agree that arsenic caused by hydrothermal alteration is present in groundwater in the Crackerville and Fairmont areas based on MBMG data, surface soils in these areas suffered impacts from the upwind smelter. According to the CSM, some of this surface arsenic would have leached into the ground water, and there is no evidence that this infiltration stops at depths of greater than 35 feet. More likely, these are "mixed" arsenic concentration zones, and AR has failed to present a reasonable method for distinguishing between harms caused by smelting and mining and naturally occurring arsenic sources in these areas of commingled ground water contamination. Apportionment under CERCLA divisibility principles is therefore inappropriate.

CONCLUSION

AR has plainly devoted substantial effort to its interpretive analysis of data regarding naturally occurring arsenic at the ARWW&S OU. Yet far more time and resources have been devoted over the last two decades by all parties to developing the CSM and devising the remedies that it supports. Additional ground water characterization in certain areas of the Site would no doubt be useful in reducing known data gaps, and the Agencies remain willing to engage in technical discussions with AR to better characterize Site ground waters. But nothing so far presented by AR justifies jettisoning the CSM and the ARWW&S OU ground water remedies mandated by the ROD and ROD Amendment.